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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,128	01/07/2002	Fufang Zha	USFMCR.066C3	3616
20995	7590	02/27/2004	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			SORKIN, DAVID L	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,128

Applicant(s)

ZHA ET AL.

Examiner

David L. Sorkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-12, 19-21 and 27-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-11, 19-21 and 27-32 is/are rejected.
- 7) ☒ Claim(s) 4 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/26/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 26 January 2004 has been entered.

Information Disclosure Statement

2. The Japanese published patent application 61-192309 cited by applicant in the information disclosure statement (IDS) submitted on 26 January 2004 has been considered. It is noted that the English translation of this publication provided by applicant omits the legend that explains to what part each reference character corresponds. It is also noted that on page 3, line 17 of the translation, "feedwater inlet (8)" should read - - feed water inlet (6) - -.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 6-11, 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 61-192309. All page and line numbers cited herein refer to those of the English

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translation provided by applicant. Regarding claim 1, JP 61-192309 discloses a method of removing fouling materials from the surface of a plurality of porous membranes (2), arranged in a membrane module the porous membranes forming an array, the module having a header (see lower end of Fig. 1 especially "lower bonding and fixing portion (3)"; page 3 lines 7-8) in which one end of each of the membranes is mounted, the header connected to a source (6) of pressurized gas, the method comprising, through a plurality of holes (those of tubes 5 passing through lower bonding and fixing portion 3) distributed throughout the header but not through the pores of said membranes, gas bubbles in a uniform distribution relative to the porous membrane array such that said bubbles move past the surfaces of said membranes to dislodge fouling materials therefrom (see page 3, lines 22-30, Fig. 2), said membranes arranged in close proximity to one another and mounted to prevent excessive movement therebetween (see Figs. 1-3), wherein said plurality of holes is not solely peripheral to the distribution of said membranes in said header (see Fig. 2). While the reference does not use the term "vibrate", it is considered that the membranes (2) would intrinsically vibrate in the disclosed method. See Sunako et al. (US 5,151,191) regarding how gas causes membranes to vibrate. Regarding claim 2, while the reference does not use the term "rubbing effect", it is considered that the membranes would intrinsically rub in the disclosed method due to close packing as disclosed in Figs. 2 and 3. Regarding claim 3, the porous membranes comprise hollow fiber membranes (see page 3, lines 1-9). Regarding claim 6, gas is provided from within the module by means of at least one porous tube (5) located within the module. Regarding claim 7, gas is provided from

within the module by means of a tube or tubes (5) positioned to output gas with the module. Regarding claim 8, the tubes are in the form of a comb of tubes (5) containing holes which are located within the module. Regarding claim 9, JP 61-192309 discloses a membrane module comprising a plurality of porous membranes (2), said membranes being arranged in close proximity to one another and mounted to prevent excessive movement therebetween (see Figs. 1-3), the membranes forming an array, the module having a header (see lower end of Fig. 1 especially "lower bonding and fixing portion (3)"; page 3 lines 7-8) in which one end of each of the membranes is mounted, the header connected to a source (6) of gas so as to permit formation of gas bubbles such that, the module is capable of being used such that in use, said gas moves through a plurality of holes (those of tubes 5 passing through lower bonding and fixing portion 3) distributed throughout said header but not through the pores of said membranes, and said bubbles move past the surfaces of and vibrate said membranes to dislodge fouling materials therefrom, wherein said plurality of holes is not solely peripheral to the distribution of said membranes in said header (see Fig. 2). Regarding claim 10, the membranes are mounted in close proximity (see Figs. 2 and 3). Regarding claim 11, the membranes are hollow fiber membranes (see page 3, lines 1-9). Regarding claim 19, the membranes comprises porous hollow fibers (see page 3, lines 1-9), the fibers being fixed at each end in a header (see Fig. 1, page 3, lines 7-9), a lower header having a plurality of holes (those of tubes 5 passing through lower bonding and fixing portion 3) formed therein through which gas is introduced to provide gas bubbles. Regarding claim 20, the fibers are sealed at a lower end and open at an upper end to

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allow removal of filtrate (see page 3, lines 8-9). Regarding claim 21, the fibers are mounted in a substantially taut manner between said headers (see Fig. 1). Regarding claim 27, JP 61-192309 discloses a method of removing accumulated solids from the surface of a plurality of porous hollow fiber membranes (2) mounted and extending longitudinally in an array to form a membrane module, said membranes being arranged in close proximity to one another and mounted to prevent excessive movement therebetween, the module having a header (see lower end of Fig. 1 especially "lower bonding and fixing portion (3)"; page 3 lines 7-8) in which one end of each of the membranes is mounted, the header connected to a source (6) of pressurized gas, the method comprising the steps of providing, through a plurality of holes (those of tubes 5 passing through lower bonding and fixing portion 3) distributed throughout the header but not through the pores of said membranes, uniformly distributed gas bubbles, said distribution being such that said bubbles pass substantially uniformly between each membrane in said array to scour the surface of said membranes and remove accumulated solids from within the membrane module, wherein said plurality of holes is not solely peripheral to the distribution of said membranes in said header (see Fig. 2). While the reference does not use the term "vibrate", it is considered that the membranes (2) would intrinsically vibrate in the disclosed method. See Sunako et al. (US 5,151,191) regarding how gas causes membranes to vibrate. Regarding claim 28, while the reference does not use the term "rubbing effect", it is considered that the membranes would intrinsically rub in the disclosed method due to close packing as disclosed in Figs. 2 and 3. Regarding claim 29, said membranes are mounted vertically

to form said array and said bubbles pass generally parallel to the longitudinal extent of the fibers (see Fig. 1). Regarding claim 30, said uniformly distributed gas bubbles are provided at the lower end of the array (see Fig. 1; page 3, lines 10-12).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 61-192309 in view of Sunaoka et al. (US 5,151,191). The module of JP 61-192309 was discussed above with regard to claim 9. JP 61-192309 further discloses a filtration system (see page 2 lines 6-8) including the module discussed above with regard to claim 9, wherein the porous membranes comprises hollow fiber membranes (2) and means to supply gas (see page 3 lines 23-26). JP 61-192309 focuses upon the module itself rather than details of the construction of the filtration system. Sunaoka ('191) teach positioning a module vertically in a tank (see Fig. 2) and means to apply transmembrane pressure (see col. 6, lines 16-19, 57-60). It is considered that page 2 lines 6-8 would have suggested to one of ordinary skill in the art to look to prior art filtration systems such as that of Sunaoka ('191) wherein the module is positioned vertically in the tank and means to apply transmembrane pressure are provided. Regarding claim 32, JP 61-192309 discusses backwashing on page 3 lines 15-16 and Sunaoka ('191) further teaches backwashing (see col. 1, lines 46-49).

Allowable Subject Matter

7. Claims 4 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 571-272-1148. The examiner can normally be reached on 9:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David Sorkin


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